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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HO, ALLEN C	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/712,415	MARIO ET AL.
	Examiner	Art Unit
	Allen C. Ho	2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-17* is/are rejected.

7)☒ Claim(s) *1-5,7-13 and 18-27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:

Line 9, --said fast backscatter detector-- should be inserted between "and" and "comprising" to clarify the language.

Appropriate correction is required.

2. Claim 18 is objected to because of the following informalities:

Line 5, --said fast backscatter detector-- has been inserted between "and" and "comprising" to clarify the language.

Appropriate correction is required.

3. Claim 27 is objected to because of the following informalities:

(1) Lines 8-10, "and comprising two elongated scintillator sections optically linked to at least one photon detector, each of said sections being oppositely disposed along said straight line" should be deleted.

(2) Line 12, --said backscatter detector-- should be inserted between "and" and "comprising".

(3) Line 12, --said-- should be inserted between "to" and "at".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 15 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 15 and 17 recite "said one end is cut at a 45 degree angle". This angle is undefined since an angle must be defined by two lines or two surfaces.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Henderson *et al.* (U. S. Patent No. 4,795,910).

With regard to claim 14, Henderson *et al.* disclosed a fast backscatter detector comprising an organic plastic scintillator (column 4, lines 63 - column 5, line 14) having an exit end and a photomultiplier tube (**12**) mounted on the exit end, and the end being shaped to project light into the photomultiplier tube.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishaque *et al.* (U. S. Patent No. 5,241,180) in view of Tsoulfanidis.

With regard to claim 14, Ishaque *et al.* disclosed a fast backscatter detector comprising an organic plastic scintillator (column 3, lines 51 - column 4, line 4) having an exit end and a photodetector (**110**) mounted on the exit end, and the end being shaped to project light into the photodetector.

However, Ishaque *et al.* failed to teach that the photodetector is a photomultiplier tube.

Tsoulfanidis disclosed that the amount of light produced in the scintillator is very small. Consequently, it must be amplified by a photomultiplier tube before it can be recorded (p. 211).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ a photomultiplier tube as the photodetector, since a person would be motivated amplify a weak signal.

With regard to claim 15, Ishaque *et al.* and Tsoulfanidis disclosed a fast backscatter detector as recited in claim 14, wherein the end is cut at a 45 degree angle (Ishaque *et al.*, column 24-38, $\alpha^{+} = 45°$).

10. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto *et al.* (U. S. Patent No. 5,444,746) in view of Tsoulfanidis.

With regard to claim 16, Okamoto *et al.* disclosed a transmission detector (**4**) comprising a scintillator having the shape of a U.

However, Okamoto *et al.* failed to teach the scintillator is an organic plastic scintillator and a photomultiplier tube is mounted at one end of the U-shape.

Tsoulfanidis taught that an organic plastic scintillator can be machined into any desirable shape and size, from thin fibers to thin sheets (p. 221).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ an organic plastic scintillator, since a person would be motivated to use a scintillator that could be machined into a desired shape.

Furthermore, Tsoulfanidis disclosed that the amount of light produced in the scintillator is very small. Consequently, it must be amplified by a photomultiplier tube before it can be recorded (p. 211).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to mount a photomultiplier tube to one end of the U-shape, since a person would be motivated to detect a weak signal.

With regard to claim 17, Okamoto *et al.* and Tsoulfanidis disclosed a transmission detector as recited by claim 16, wherein the one end is cut at a 45 degree angle (when the one end is oriented 45 degrees relative to a surface).

Allowable Subject Matter

11. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 1-5, 7-13, and 21-26, although the prior discloses a scanning x-ray inspection system comprising a conveyor having a belt, an x-ray generation device, a fast backscatter detector disposed on the same side of the moving object as the x-ray generation

device, the fast backscatter detector comprising two elongated sections, each of the sections being oppositely disposed along the straight line, and a transmission detector positioned on the opposite side of the object as the backscatter detector, it fails to teach or fairly suggest that the fast backscatter detector comprises two elongated scintillator sections optically linked to at least one photon detector as claimed.

With regard to claims 18-20, although the prior art discloses a method for x-ray inspection of an object using transmitted and Compton backscattered radiation comprising the step of providing an x-ray source, a conveyor having a belt, a fast transmission detector, and a fast backscatter detector, the x-ray source and the fast backscatter detector being disposed on one side of the belt, and the transmission detector being disposed on the other side of the belt, it fails to teach or fairly suggest that the fast backscatter detector comprises two elongated scintillator sections optically linked to at least one photon detector as claimed.

With regard to claim 27, although the prior art discloses a scanning x-ray inspection system comprising a conveyor having a belt, an x-ray generation device, a fast backscatter detector comprising a scintillator having a short persistence phosphor and at least one photon detector and being disposed on the same side of the moving object as the x-ray generation device, the backscatter detector comprising two elongated sections, each of the sections being oppositely disposed along the straight line, and a transmission detector comprising a scintillator having a short persistent phosphor and at least one photon detector and being positioned on the opposite side of the object as the backscatter detector, it fails to teach or fairly suggest that the backscatter detector comprises two elongated scintillator sections optically linked to at least one photon detector as claimed.

Response to Arguments

12. Applicant's arguments filed 29 December 2005 with respect to the drawings have been fully considered and are persuasive. The objections of the drawings have been withdrawn.

13. Applicant's arguments filed 29 December 2005 with respect to the specification have been fully considered and are persuasive. The objections of the specification have been withdrawn.

14. Applicant's arguments, filed 29 December 2005, with respect to claims 18 and 22 have been fully considered and are persuasive. The objections of claims 18 and 22 have been withdrawn.

15. Applicant's arguments, filed 29 December 2005, with respect to claims 1-5, 7-12, 18-20, 21-27 have been fully considered and are persuasive. The rejections of claims 1-5, 7-12, 18-20, 21-27 under 35 U.S.C. 102(b) or 103(a) have been withdrawn.

16. Applicant's arguments, filed 29 December 2005, with respect to claims 1-27 have been fully considered and are persuasive. The rejection of claims 1-27 under obviousness-type double patenting has been withdrawn.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(1) Rogers *et al.* (U. S. Patent No. 5,786,599) disclosed enhanced spatial resolution scintillation detectors.

(2) Tanaka *et al.* (U. S. Patent No. 5,012,103) disclosed a radiation detector.

(3) Logan (U. S. Patent No. 4,990,785) disclosed a radiation imaging apparatus.

(4) Kalish (U. S. Patent No. 3,944,832) disclosed a scintillation spectrometer.

(5) Noakes (U. S. Patent No. 3,898,463) disclosed a scintillation counting apparatus.

(6) Humphrey (U. S. Patent No. 3,539,806) disclosed a direction-determining gamma-ray detector.

(7) Carrell (U. S. Patent No. 3,399,302) disclosed a gamma radiation sensor and detection system.

(8) Keck *et al.* (U. S. Patent No. 3,376,417) disclosed a whole body scintillation detector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen C. Ho

Allen C. Ho
Primary Examiner
Art Unit 2882

11 January 2006